

IMPORTANT NOTICE.

Our Self-restorable Battery—latest improved, March 10, 1887—with elements of double quantity, consisting of thirty-five broad links to each chain, is furnished in all cases in place of the narrow chains of sixty links each, as shown in the illustration. The improved battery is stronger in electric power than the narrow form, but the latter can be furnished in exchange, if desired. Those wishing to exchange should return the battery just as received, without charging the chains with vinegar. We advise patients in every case to use the improved battery.

"I have great pleasure in stating that I consider Pulvermacher's Patent Chain Batteries to be a very convenient and effective form of Voltaic Apparatus for medical purposes."

JONATH. PEREIRA, M. D., F. R. S., F. R. C. P.

"Pulvermacher's Chains are Voltaic Batteries of a very ingenious form, and are endowed with a powerful electric tension, etc., etc."
Professor DE LA RIVE.—"Electricity in Theory and Practice."
"They are a very ingenious and beautiful arrangement of the galvanic principle, and I have no doubt will lead many medical practitioners to use this powerful agent, from their neatness and convenience. They are so portable, and at the same time powerful, that many will resort to them, and indeed be pleased by them, who would be alarmed at a more complicated apparatus."

VALENTINE MOTT, M. D., J. L. S.



PULVERMACHER'S Self-Restorable POCKET CHAIN BATTERY

120 Elements, with conducting Handles, Interrupter, and Disc.

PRICE, \$30.

The use of these Electric Batteries, in connection with the Belts, etc., is most advantageous as an auxiliary to hasten the treatment, and in extreme cases they are almost indispensable. The treatment is from 10 to 15 minutes once or twice per day.

TO BE USED IN CONNECTION WITH THE BELT, ETC.

SILVER SWIVEL

GOLD SWIVEL

EXPLANATORY.

The Handles or Conducting Cylinders of battery holding the sponges as above, show the proper connection—one handle is joined by the gold swivel of one chain, the other handle by the silver swivel of the other. To secure a continuous current of electricity (without shocks) the gold and silver swivels at the lower or free ends of the chains are to be hooked together. To secure the intermittent or shock current, in addition to this arrangement, insert the interrupter or current breaker between the conducting cylinder or handle of the battery and the white or silver swivel of chain (see position for interrupter in above cut.)

"We have in this ingenious invention what has long been a desideratum, viz.: an apparatus of the smallest possible bulk, capable of evolving a continuous or uninterrupted current of electricity of moderate tension, without the expense, bulk, and great inconvenience of the trough, or the cell arrangements. I can hardly recommend Pulvermacher's invention too strongly to my medical brethren."
Dr. GOLDING BURN, A. M., F. R. S., F. L. S.
In these days of medicogalvanic quackery it is a relief to observe the very plain and straightforward manner in which Pulvermacher's apparatus is recommended to the profession.—*London Lancet*.

Pulvernacher's Self-Restorable Chain Battery Directions for use

Pass the chains through pure vinegar and allow the superfluous liquid to drain away, by holding it a short time in a slanting direction.

Connect the two chains by hooking one of the Gold swivels (positive) of one, to the Silver swivel (negative) of the other. They then form electrically but one chain.

Now on each end of the Chain battery hook one of the brass conductors having first put into the tube of each a piece of sponge well wetted with water. The Conductor which is attached to the yellow hook or swivel of the battery denotes the positive pole and the Conductor attached to the silver hook denotes the negative pole. Holding the conductors by the wooden handles apply the sponge end of the positive pole to the bottom of the spine and hold it there.

Then allow the Chain to drop between the legs, and apply the negative pole conductor, rubbing the sponge over the abdomen, also on the groins, and especially on the spermatic cord, back of testes, holding it there some two

or three minutes each time of application which should be twice a day for a quarter or half an hour at a time.

This method of application is called the continuous current. For producing the Intermittent current which should be applied alternately with the continuous insert the glass interrupter between the white or silver swivel and the brass conductor. Every time the spiral spring in the glass tube vibrates by being smartly tapped with the finger a slight shock ensues. This application is the same as the continuous

The round buckle and tapes are to obviate the use of one of the conductors (positive) by attaching them to the gold swivel of the battery placing the flat side of the disc to the bottom of the spine and fastening round the body with the tapes. The plate may be frequently shifted to the top of the spine and the tapes tied round the neck. while the Stomach, Liver, Chest, abdomen and the privates (male or female) are stimulated with the conductor (negative pole) as before.

The glass cylinder must be kept dry use a hip bath or sponge bath every night or morning. Have regular hours for sleeping and eating. spirits and Tobacco should be abstained from during the treatment. after using the chain rinse in cold water and hang up separately to dry. These directions apply mostly to special cases.

GENERAL DIRECTIONS FOR USE.

The Chain Batteries are to be drawn through pure vinegar from one end to the other, so that every element or link is charged with fluid. To prevent the spilling of the superfluous liquid adhering to the chain after wetting, the chain is to be kept for a while in a slanting direction, so as to enable the liquid to drain off into the cup or glass in which the chain has just been wetted.

Metallic Conducting Cylinders (in tubular form for holding sponges) accompanying the Chain Battery are provided with insulating wooden handles and a hook and ring to receive the swivels of the Battery. Hook the gilt swivel on the end of one chain in the ring of one Conducting Cylinder; hook the silver swivel of the other chain in the ring of the other Conducting Cylinder. By means of these conductors, the current of electricity, *continuous or interrupted*, can be communicated to any part of the body.

1st. The Interrupted.—For directing single shocks (through both wrists and arms, wet the hands with water and hold the metallic portion of the handles of battery one in each hand; now without hooking the chains bring them together to and fro in a swinging manner or by a simple vibrating touch; the moment that the free ends of the chains hanging down are caused to touch each other, a shock of muscular contractions through the hands and arms ensues, the power of which is strongest when the extreme ends of the chains touch each other, and becomes milder in proportion as the contact is farther from the ends and nearer to the Conductors (or handles); such shocks can be communicated in the same manner through any part of the body by applying the Conducting Cylinders to the part to be galvanized by a strong current, holding them by their insulating wooden handles, and moistening the skin with vinegar or water at the places where the conductors are to be applied. Each time the free ends of the chains are brought into contact, (as before described) contractions of the muscles of the part where the electricity is made to traverse by means of the Conducting Cylinders will be produced, more or less strong in accordance with the more or less number of Elements, or links of the chain that is brought in the circuit, and according to the strength of the vinegar used.

A rapid succession of shocks (or muscular contractions) are produced by inserting between one Conducting Cylinder (or handle), and one pole of the chain, (by means of the hook of former and swivel of the latter) the little glass interrupter or current breaker, and by hooking together the lower or free ends of the chains by means of the gold and silver swivels. As often as the glass interrupting Cylinder is shaken or tapped with the finger so as to cause the spring in the glass tube to vibrate, a series of muscular contractions is produced; care should be taken that the silver end pieces (with our trade mark stamped upon them) should never be fastened together by their silver swivels, nor any two similar colored swivels be attached to the conducting cylinders or handles of the battery—directly the opposite is correct.

2d. The Continuous Current (without shocks or muscular contractions) is produced and applied in a similar manner as just described, with the only difference, the glass interrupting Cylinder or current breaker, is left out from the circle, so that the two chains and the two Conducting Cylinders are linked together in a direct manner as described above.

If the galvanic current is to be passed from the top of the spine to the stomach, the Conductor with wetted sponge on which the gilded swivel (positive) is hooked, is applied to the nape of the neck so as to make the sponge touch the same, while the other handle, with its sponge, is to be applied on the pit of the stomach. For the upper extremities, apply the sponge of the Conductor with the gilded swivel (positive) on the top of the spine, and the other to the arm, fore-arm, or affected part. For the lower extremities, place the sponge of the Conductor connected with the gilded swivel (positive) at the bottom of the spine, and the other Conducting Cylinder on the thigh, knee, or the foot, inside or outside, according to the case. For special complaints of the reproductive system, treat the privates as directed in special directions on the other side in writing. Female complaints, womb diseases, etc., should be treated in the same manner, and at times the conducting sponge of negative pole should be introduced within the vagina, and the positive pole placed at bottom of the spine, or shifted about to diffuse the current over a more extended surface. Duration of these applications varies according to the case to be treated, from a quarter to half an hour once or twice daily. In stubborn head troubles, chronic catarrh, etc., the battery current should be applied in the continuous form (without shocks) a few minutes at a time, night and morning, as auxiliary treatment to the head chain. The hair should be wetted when the current is to enter any part to be treated so covered by hair. After use, rinse the Chains with water and hang them up separately to dry, as they must not be put in the box in a wet or damp state.

The round Disk with tapes attached is to obviate the use of one conducting cylinder (positive pole) as explained in the written directions.

For certain paralytic cases the shocks by *intermittent current* are easily obtained by inserting between the conducting handle and the conducting wire the small interrupting glass Cylinder, which by each vibration communicated to it, rapidly interrupts the current, and causes contractions of the muscles. In *central paralysis*, however, these currents are to be avoided, and the curative powers of the *continuous currents* exclusively used.

The predominant curative power of the *continuous current*, owes its efficiency to the *electro-chemical action* which activates the *vital chemistry* in the body by animating the *circulation, digestion, assimilation, secretion, and excretion*.

Intermittent currents generated by magneto-electric machines, galvanic batteries or even by Pulvermacher's chain-batteries in conjunction with an interrupter or current breaker, though producing powerful muscular contractions, are inefficient in polarising the liquids in the animal system and influencing their chemical changes. The reparative action of the *continuous current* produces effects analogous to those of the natural currents of electricity in the body when the latter is in a state of rest, whereas the effect on the system of the *intermittent current* is analogous to that of the discharges of electricity evolved by the animal body, which takes place under the influence of *muscular exertion*, and thus tends to the *exhaustion* of vital force rather than to its *increase*.